DOCUMENT RESUME

ED 457 743 HE 034 396

AUTHOR Wisan, Gail; Roy, Pallabi Guha; Pscherer, Charles P., Jr.
TITLE Time as a Dimension of the Digital Divide: Profiles over Time of Students Taking Online, Face-to-Face, or Mixed Delivery Classes at a Large Virtual University. AIR 2001 Annual Forum Paper.
PUB DATE 2001-06-04
NOTE 30p.; Paper presented at the Annual Meeting of the Association for Institutional Research (41st, Long Beach, CA, June 3-6, 2001).
PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Age Differences; *College Students; Computer Literacy; *Course Selection (Students); Demography; *Distance Education; Geographic Distribution; Higher Education; Longitudinal Studies; Online Systems; Profiles; Sex Differences; *Student Characteristics; *Time
IDENTIFIERS Virtual Universities

ABSTRACT

A large virtual university, a participant in a major distance study, is tracking students' enrollment in online or both online and face-to-face classes (i.e., mixed). Although an online students' profile provides data for examining the digital divide, one-time snapshots are inadequate. Time must be included as a dimension of any analysis of demographic groups' participation in online education. Two aspects of time were analyzed: calendar time (3 years of trend data) and time in relationship to degree. The paper provides data on the ethnic, gender, age, and demographic distribution of online and "mixed" students. In all, data were available for 16,092 students in 1999, 18,311 in 2000, and 20,920 in 2001. Trend data on how ethnic groups and other demographic groups are self-selecting classes with different delivery formats speak more directly to understanding the digital divide. The paper provides 3 fiscal years of percentages (FY 1999 to FY 2001) of different demographic groups (ethnic, gender, age, and geographic) enrollment in online, mixed, and face-to-face education at a large, substantially virtual university during a period of rapid expansion in online education. The paper discusses the implications for the digital divide of this enrollment trend data. (Contains 3 figures, 9 tables, and 14 references.) (SLD)

Reproductions supplied by EDRS are the best that can be made
from the original document.

ED 457 743

Time as a Dimension of the Digital Divide: Profiles Over Time of Students Taking Online, Face-to-Face, or Mixed Delivery Classes at a Large Virtual University

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
This document has been reproduced as received from the person or organization originating it.
Minor changes have been made to improve reproduction quality.
Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Gail Wisan, Ph.D.
Director

Pallabi Guha Roy, Ph.D.
Senior Research Associate

Charles P. "Pat" Pscherer, Jr.
Research Associate

Office of Institutional Accountability, Planning and Research
University of Maryland University College
3501 University Boulevard East
Adelphi, MD 20783-8010

Paper presented at: **41st Forum of**
The Association for Institutional Research
Long Beach, California
June 4, 2001

BEST COPY AVAILABLE

Time as a Dimension in the Digital Divide:

Profiles Across Time of Students Taking Only Online, Only Face to Face, or Both Types of Delivery Format Classes at a Large Virtual University

Abstract

A large virtual university, a participant in a major distance study, is tracking students' enrollment in online or both online and face-to-face classes (i.e., mixed). Although an online students' profile provides data for examining the digital divide, one-time snapshots are inadequate. Time must be included as a dimension of any analysis of demographic groups' participation in online education. Two aspects of time will be analyzed: calendar time (i.e., three years of trend data); and time in relationship to degree. This paper provides data on the ethnic, gender, age and geographic distribution of online and "mixed" students. Trend data on how ethnic groups and other demographic groups are self-selecting classes with different delivery formats speaks more directly to understanding the digital divide. This paper provides three fiscal years of percentages (FY 1999 to FY 2001) of different demographic groups'-- ethnic, gender, age and geographic-- enrollment in online, mixed, and face-to-face education at a large substantially virtual university during a period of rapid expansion in online education. The implications for the digital divide of this enrollment trend data are discussed.

Time as a Dimension in the Digital Divide:

Profiles Across Time of Students Taking Online, Only Face to Face, or Both Types of Classes at a Major Virtual University

INTRODUCTION

A large virtual university, a participant in a national distance education study, is tracking students' enrollment in only distance, only face to face, or both types of delivery format classes. Since most of the University's distance classes are delivered via the web, the institution's profile of students speaks to questions about the digital divide. Concerns have been raised in both professional and popular forums about the digital divide: the unequal use/access to computers and especially the Internet of different demographic categories.

Review of Literature

Does the growth of web based education provide an opportunity for increased access...or, does it further reduce access by accentuating the significance of the digital divide? These issues were directly confronted in a report published by the College Board which was entitled, "The Virtual University and Educational Opportunity: Issues of Equity and Access for the Next Generation" (Gladieux and Swail, 1999). The report's authors state, "The Web shatters geographical barriers to educational access, but it also may create new ones. Virtual Universities will only help those who have the necessary equipment and experience to be comfortable with technologies" (Gladieux and Swail,

1999, p. 17). The report cites that online access is stratified by income and racial/ethnic categories. Gladieux and Swail report that, "white households are twice as likely as black and Hispanic households to have access to computers and online services."

Time is an important dimension in the discussion of the digital divide at a Virtual University that provides face to face, online and some other types of distance classes and where students can enroll in different delivery formats during the same semester or over time. Analysis of students' enrollment in online classes should not simply be a snapshot, or it will be misleading. A student's (or a group of students with a set of demographic characteristics) enrollment is better viewed as a dynamic movie, rather than as a single snapshot. Only by looking at enrollment in different delivery formats across the dimension of time can an accurate picture be viewed: the analysis needs to be analogous to the moving picture, not the still shot.

Research regarding the demographic characteristics of online, face-to-face, and mixed students has been cited as an important area of research. Ron Phipps et. al. listed "issues for further research and analysis" in his report "Assuring Quality in Distance Learning," which was prepared for the Council for Higher Education Accreditation by the Institute for Higher Education Policy (April 1998). He includes the following as "key questions requiring further research and analysis:"

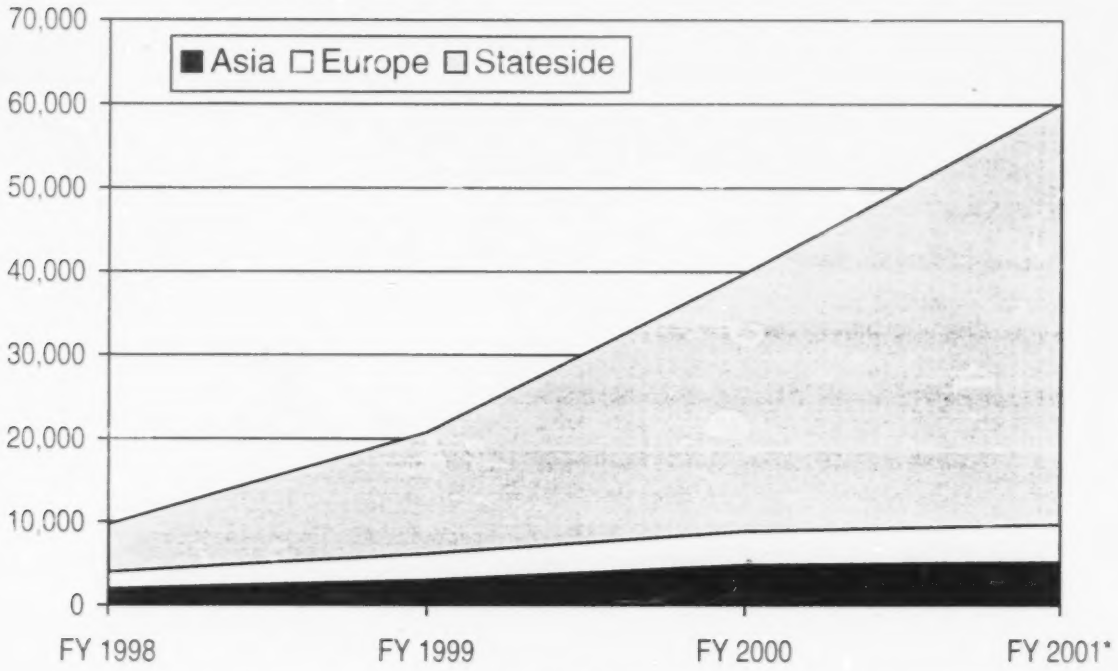
> What are the demographic characteristics of students now being served by distance learning programs, and how does this compare to student characteristics for conventional programs? (Phipps et. al., CHEA, page 12)

> What can we generalize about the matriculation, enrollment, and patterns of learning progression for students in distance learning? (Phipps et. al., CHEA, page 12)

Research Questions

This paper speaks directly to two research questions that Phipps, *et. al.* recommended for further research in "Assuring Quality in Distance Learning." First, we report trends in the profiles of online, mixed, and face-to-face students during the online growth years of FY 1999, FY 2000, and FY 2001 using data from the largest (or certainly one of the largest) online universities in the world (see Figure 1). Second, in this descriptive research, we also report on two types of enrollment patterns: 1.) Trends (FY 1999, FY 2000, and FY 2001) in enrollment in online, mixed, face-to-face and other class delivery formats by gender, ethnic, age and geographic category; 2.) Patterns of degree completion over three fiscal years are reported and discussed.

FIGURE 1: Worldwide Online Enrollments: FY 1998 to FY 2001*

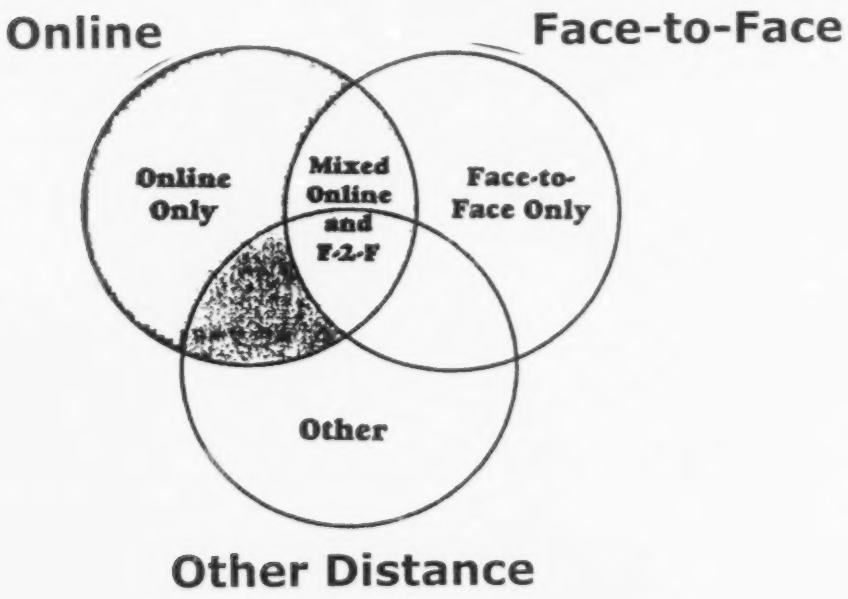


* Preliminary FY2001 as of April 18, 2001. Final FY2001 after July 1, 2001.

Conceptual Framework: Classifying Students on Self-selected Delivery Format(s)

We first classified students based upon their enrollment in online, mixed, face-to-face, or other delivery formats. See Figure 2 for a Venn Diagram that graphically displays how students were categorized into the four categories: online, mixed, face-to-face and other.

Figure 2: Venn Diagram of Conceptual and Operational Framework for Classifying Students Based Upon Their Enrollment in Online, Mixed, Face-to-Face, and Other Classes



BEST COPY AVAILABLE

STUDY DESIGN

Student Population

The population being studied at a large Virtual University consists of the University's stateside-based student population. This student population is diverse in terms of both ethnicity and gender. Ethnic and gender diversity provides satisfactory data for analyzing trends among different ethnic groups and genders in the selection of online classes either alone or mixed with face-to face classes. In terms of age, the median age of both undergraduate and graduate students is about 36 but there is enough age spread among students to look at selection of online and mixed enrollment patterns among different age categories. Student geographic characteristics are also analyzed and discussed. Regarding enrollment status, approximately 89-90 percent of UMUC's students enroll part-time since, as noted when discussing age, they are typically adults employed full-time.

Trends

In this paper, we describe various types of demographic trends (i.e., changes in percentages over three fiscal years, i.e., calendar time) for FY 1999, FY 2000, and FY 2001. We describe not only trends in students profiles, but also trends in how different categories of students such as African-Americans are self-selecting into different education delivery formats. The percentage of students selecting online, mixed, face-to-face, or other delivery methods is presented for each gender, ethnic, age, and geographic category over three fiscal years, thus providing trend data on various subgroups, including ethnic minorities' participation in online learning.

Retrospective Studies and Degree Completion

At UMUC, online students are not forcibly segregated into separate online or continuing education programs. Rather, students may choose to enroll in only online, only face-to-face, both online and face-to-face, or a residual number of other types of distance classes (e.g., voice mail) that are being phased out. Students are given more freedom to choose delivery format a la carte. Students are permitted to mix and match delivery formats, where it is geographically possible, in one semester, over the course of a fiscal year, or anytime as they move towards the completion of their academic program. The existence of student choice or self-selection at UMUC provides an opportunity to examine, using a retrospective design, whether different patterns of self-selection affect degree completion. Specifically, we report whether choosing at least some online classes, i.e., mixed students, is associated with higher rates of degree completion.

Retrospective analysis is a methodology that permits you to look backwards after you already know an outcome. In the field of health, epidemiologists use retrospective studies to observe those with and without a specific disease. "The proportion of cases exposed to the agent or possessing the characteristic (or factor) of etiological interest" (p. 194, Lilienfeld and Lilienfeld) in the group with the disease is compared to the proportion with the proposed etiological characteristic who do not have the disease. If the proportion is higher among those with the disease, "an association between the disease and the characteristic may be inferred" (p. 194, pp.191-225, Lilienfeld and Lilienfeld). In this paper, we use the retrospective design to analyze the proportion of students who have completed degrees in FY 1999, FY 2000, and FY 2001.

RESULTS

Profile

Gender

Undergraduate:

UMUC total students consist of a higher proportion of females than males. All delivery formats have a higher proportion of females. In FY 2001, the proportion of females in the entire undergraduate population was about 56% and about 57% in the online population. Females' distribution in the "mixed" format category is somewhat greater: 60% and somewhat lower in the onsite/ face-to-face format category. This gender pattern has been stable since FY 1999.

Graduate:

For graduate studies the picture is slightly different. During FY00 and FY01 all delivery formats have a higher proportion of males except mixed category where women are about 3% higher than men showing a tendency among women to take classes of mixed delivery format. In FY 2001, the proportion of males in the entire graduate population was about 52% and about 54% in the online population. Females' distribution is somewhat lower: 46% and 48% respectively in online and onsite/ face-to-face format category. This gender pattern has been stable since FY 1999 with the exception of females about 8% higher in the "other" category in FY99.

Ethnicity

Undergraduate:

In FY 2001, African-Americans represented 32% of the undergraduate population at UMUC. Although they were underrepresented in the completely online population (24%), their proportion in the category that mixed online and face-to-face classes was greater than their proportion in the undergraduate population (36% versus 32%). Likewise, African -American represented a larger portion of the face-to-face category (38.6%). This pattern has existed for three years...but in FY 2001, the proportion of African-Americans in the mixed category has increased more relative to their proportion in the general population. In FY 2001, whites are over-represented in the completely online category (61.5%) but underrepresented in the mixed category (44.4%) and face-to-face category (39%) relative to their proportions in the general population (50%). Over the three fiscal years FY 1999 to FY 2001, online classes have had a decreasing proportion of white students and an increasing proportion of African-Americans. Asians tend to be underrepresented in the completely online category and somewhat overrepresented in the mixed and face-to-face categories over the three years. Hispanics representation in the different delivery formats is similar to their proportion in the overall population but Hispanics are a small portion of the University's population.

Graduate:

In FY 2001, African-Americans represented 30% of the graduate population at UMUC. Although they were underrepresented in the completely online population (24%), their proportion in the mixed category was significantly greater than their proportion in the graduate population (41% versus 30%). African Americans represented a similar portion

of the face-to-face category (40%). For three years this pattern has existed. With time the proportion of African-Americans in the mixed category has increased more relative to their proportion in the general population (41% versus 30% in FY01, 37% versus 31% in FY00 and 34.3% versus 31% in FY99). Whites are over-represented in the completely online category (59%) in FY01, but underrepresented in the mixed category (41%) and face-to-face category (39%) relative to their proportions in the general population (51%).

The proportion of white students in online classes had been narrowing over the three fiscal years FY1999 to FY2001 and for African-Americans the proportion was increasing. Asians are inclined to be over-represented in the mixed and face-to-face categories over the three years while somewhat underrepresented in the online category. A small portion (3.6% in FY01) of the University's population is Hispanics. Their representation in the different delivery formats is similar to their proportion in the overall population.

Age

Undergraduate:

The age categories that are over represented in the online categories, relative to their proportion in the population, are the middle age groups (26-35 and 36-45). The younger and older choose online and mixed less. This has been the overall pattern since FY 1999 except that the 36-45 year olds were mainly over represented in the online categories and not the mixed categories.

Graduate:

Over the three years the age group that is over represented in the online category, relative to their proportion in the population, is the middle age group (36-45). In the mixed category the age group 26-35 is over represented. The younger and older preferred online and mixed classes less. This has been the overall pattern since FY 1999.

Trends in Student Selection of Online and Mixed Courses

Overall, trend lines for the different demographic groups demonstrated that all of them experienced growth in their participation in online education. While the starting and ending points varied, the overall trend lines for percent of classes taken online were parallel and similar in their patterns of growth. Likewise, the overall trend lines for mixed (i.e., taking both online and face-to-face classes). Some groups participated more in online education without face-to-face enrollments but other demographic groups "mixed" their participation in online classes with face-to-face enrollments over the three fiscal years, FY 1999, FY 2000, and FY 2001.

Ethnicity

In FY00, 23.5% of African-American undergraduate students chose online classes and 19.4% chose both face-to-face and online classes (i.e., were mixed students). White students chose 38.9% and 16.5% respectively. In FY01 31.1% of African-Americans chose online classes and 23.1% chose to enroll in both online and face-to-face classes

(i.e., mixed). In the same year, fifty percent of white students had taken online classes and 18.1% had taken mixed classes. (See Table 5.)

Graduate students are moving towards online and mixed enrollments even faster than undergraduate students are. In FY01, all ethnic groups are selecting online classes more frequently than other delivery formats. In FY00 African-American chose 30.7% online classes and 34.8% mixed while Whites chose 52.6% online and 23.8% mixed. In FY01 African-Americans chose 47.2% online and 30.5% mixed but Whites chose 69.5% and 17.9% respectively. (See Table 5.)

Gender

Men and women's patterns of enrollment in online classes between FY 1999 and FY 2001 are very similar in undergraduate programs. In FY 1999, approximately 17% of both genders selected online classes. In FY 2000, approximately 32% of both men and women chose online classes. BY 2001, About 41% of both genders chose online classes. Women choose mixed classes slightly more than men. In FY 2001, women chose both online and face-to-face classes slightly more than men. (Approximately twenty-two percent of women chose both types of delivery formats in FY01 which is higher than that of males (18.7%), suggesting that women value the flexibility of online courses. This same small difference can be found in FY 2000 and FY 1999 (See Table 6).

Both men and women increased their enrollment in online classes substantially between FY 1999 and FY 2000 in graduate studies. The mixed category went down between FY 2000 and FY 2001 for both men and women. Nonetheless, women enrolled in both online and face-to-face classes more often than men did in all three years.

In FY00 men had taken 45.3% online and 26.5% mixed classes while for women the numbers are 41.2% and 30.9%. In FY01, 62.4 % of men chose online classes as opposed to 58.6% of women. (See Table 6.)

Age

All age groups increased their choice of online classes between 1999 and 2001. The age group of undergraduates selecting online classes the most was the 36-45 year old category. Students 26-45 trailed slightly behind the 36-45 year old age group. Thirty-four percent of undergraduate students in age category 36-45 registered in online and 16% enrolled in both online and face-to-face classes (i.e..mixed)courses in FY00. In FY01 44.6% of 36 to 45 year olds took only online classes and 17.6% took online and face-to-face classes.

(See Table 7.)

Sixty-one percent of graduate students in the age group 46-54 took only online classes and 20.9% took both online and face-to-face classes (i.e..mixed classes) in FY01. The comparable figures in FY 00 were 41.9% and 24.9%.

(See Table 7.)

Geography

Instate undergraduate students have increase their selection of online classes each year. In FY 1999, 11 percent of students selected online classes. In FY 2000, 20% chose online classes only. In FY 2001, 27% chose online classes only. The sum of online only and

mixed for instate for the three years was 25%, 41% and 52%. Among out-of-state students, by 2001, 74 % chose online classes. (See Table 8.)

Among graduate instate students, 43% of students enrolled in online or mixed classes in FY 1999. In FY 2000 and 2001, the comparable statistics were 65% and 77%. (See Table 8.)

Degree Completion

Undergraduate:

Of all FY1999 degree recipients only 5.7% completed their degrees totally online. Proportion of online completion had increased over time. About 15% of the FY2001 graduates enrolled in all online classes. Degree completion in the mixed category has the highest proportion among all delivery formats over FY2000 and FY2001. In FY1999, 35.9% took mixed online and face-to-face classes to finish their degrees whereas in FY2001 it is 60% showing a significant increase over time. (See Table 9.)

Graduate:

Five percent of all FY2001 graduating students completed their degrees online. The proportion of online completion increased by about 4% over the three fiscal years. In FY2001, 68.3% took mixed classes to complete their degrees. Degree completion in the mixed category increased at the same rate (about12%) over three fiscal years. (See Table 9.)

Table 1: Profile of Students Enrolled in Online, Mixed, Face-to-Face (Onsite), Other, and All Classes

ETHNICITY DISTRIBUTION

	Online		Mixed		Onsite		Other		Total	
UNDERGRADUATE	#	%	#	%	#	%	#	%	#	%
2001										
African-American	2,076	24.2%	1,544	36.1%	2,643	38.6%	409	33.4%	6,672	31.9%
Native American	58	0.7%	31	0.7%	35	0.5%	5	0.4%	129	0.6%
Asian	400	4.7%	405	9.5%	747	10.9%	71	5.8%	1,623	7.8%
Hispanic	333	3.9%	195	4.6%	360	5.3%	32	2.6%	920	4.4%
White	5,261	61.5%	1,901	44.4%	2,674	39.0%	666	54.5%	10,502	50.2%
Unknown	433	5.1%	206	4.8%	395	5.8%	40	3.3%	1,074	5.1%
Total	8,561	100%	4,282	100%	6,854	100%	1,223	100%	20,920	100%
2000										
African-American	1,315	22.6%	1,086	32.8%	2,514	35.6%	671	31.6%	5,586	30.5%
Native American	36	0.6%	14	0.4%	33	0.5%	8	0.4%	91	0.5%
Asian	242	4.2%	347	10.5%	716	10.1%	111	5.2%	1,416	7.7%
Hispanic	228	3.9%	145	4.4%	369	5.2%	60	2.8%	802	4.4%
White	3,826	65.8%	1,627	49.1%	3,160	44.7%	1,228	57.8%	9,841	53.7%
Unknown	165	2.8%	94	2.8%	271	3.8%	45	2.1%	575	3.1%
Total	5,812	100%	3,313	100%	7,063	100%	2,123	100%	18,311	100%
1999										
African-American	588	20.8%	625	29.8%	2,510	31.9%	953	29.0%	4,676	29.1%
Native American	5	0.2%	6	0.3%	24	0.3%	11	0.3%	46	0.3%
Asian	95	3.4%	196	9.3%	808	10.3%	137	4.2%	1,236	7.7%
Hispanic	98	3.5%	85	4.1%	367	4.7%	90	2.7%	640	4.0%
White	1,982	70.1%	1,138	54.2%	3,897	49.5%	2,034	61.8%	9,051	56.2%
Unknown	59	2.1%	48	2.3%	271	3.4%	65	2.0%	443	2.8%
Total	2,827	100%	2,098	100%	7,877	100%	3,290	100%	16,092	100%
GRADUATE										
2001										
African-American	1,117	23.7%	722	41.0%	519	40.4%	9	52.9%	2,367	30.4%
Native American	39	0.8%	10	0.6%	7	0.5%	0	0.0%	56	0.7%
Asian	382	8.1%	222	12.6%	179	13.9%	0	0.0%	783	10.1%
Hispanic	169	3.6%	56	3.2%	52	4.0%	1	5.9%	278	3.6%
White	2,778	59.0%	714	40.5%	496	38.6%	7	41.2%	3,995	51.4%
Unknown	225	4.8%	39	2.2%	32	2.5%	0	0.0%	296	3.8%
Total	4,710	100%	1,763	100%	1,285	100%	17	100%	7,775	100%
2000										
African-American	619	21.8%	701	37.3%	651	38.6%	46	29.3%	2,017	30.7%
Native American	18	0.6%	5	0.3%	2	0.1%	1	0.6%	26	0.4%
Asian	197	6.9%	252	13.4%	218	12.9%	17	10.8%	684	10.4%
Hispanic	99	3.5%	65	3.5%	56	3.3%	4	2.5%	224	3.4%
White	1,852	65.1%	838	44.6%	745	44.2%	86	54.8%	3,521	53.6%
Unknown	59	2.1%	17	0.9%	15	0.9%	3	1.9%	94	1.4%
Total	2,844	100%	1,878	100%	1,687	100%	157	100%	6,566	100%
1999										
African-American	289	20.8%	510	34.3%	903	33.9%	133	33.2%	1,835	30.9%
Native American	7	0.5%	2	0.1%	12	0.5%	1	0.2%	22	0.4%
Asian	94	6.8%	149	10.0%	334	12.5%	32	8.0%	609	10.3%
Hispanic	48	3.4%	46	3.1%	107	4.0%	7	1.7%	208	3.5%
White	951	68.3%	772	52.0%	1,294	48.6%	224	55.9%	3,241	54.6%
Unknown	3	0.2%	6	0.4%	12	0.5%	4	1.0%	25	0.4%
Total	1,392	100%	1,485	100%	2,662	100%	401	100%	5,940	100%

Table 2: Profile of Students Enrolled in Online, Mixed, Face-to-Face (Onsite), Other, and All Classes

GENDER DISTRIBUTION

	Online		Mixed		Onsite		Other		Total	
UNDERGRADUATE	#	%	#	%	#	%	#	%	#	%
2001										
Female	4,861	56.8%	2,576	60.2%	3,642	53.1%	700	57.2%	11,779	56.3%
Male	3,700	43.2%	1,706	39.8%	3,212	46.9%	523	42.8%	9,141	43.7%
Total	8,561	100%	4,282	100%	6,854	100%	1,223	100%	20,920	100%
2000										
Female	3,253	56.0%	1,921	58.0%	3,789	53.6%	1,230	57.9%	10,193	55.7%
Male	2,559	44.0%	1,392	42.0%	3,277	46.4%	893	42.1%	8,121	44.3%
Total	5,812	100%	3,313	100%	7,066	100%	2,123	100%	18,314	100%
1999										
Female	1,572	55.6%	1,201	57.2%	4,115	52.2%	1,945	59.1%	8,833	54.9%
Male	1,255	44.4%	897	42.8%	3,762	47.8%	1,345	40.9%	7,259	45.1%
Total	2,827	100%	2,098	100%	7,877	100%	3,290	100%	16,092	100%
GRADUATE										
2001										
Female	2,177	46.2%	914	51.8%	615	47.9%	8	47.1%	3,714	47.8%
Male	2,533	53.8%	849	48.2%	670	52.1%	9	52.9%	4,061	52.2%
Total	4,710	100%	1,763	100%	1,285	100%	17	100%	7,775	100%
2000										
Female	1,286	45.2%	967	51.5%	808	47.9%	64	40.8%	3,125	47.6%
Male	1,558	54.8%	911	48.5%	879	52.1%	93	59.2%	3,441	52.4%
Total	2,844	100%	1,878	100%	1,687	100%	157	100%	6,566	100%
1999										
Female	650	46.7%	800	53.9%	1,226	46.1%	218	54.4%	2,894	48.7%
Male	742	53.3%	685	46.1%	1,436	53.9%	183	45.6%	3,046	51.3%
Total	1,392	100%	1,485	100%	2,662	100%	401	100%	5,940	100%

Table 3: Profile of Students Enrolled in Online, Mixed, Face-to-Face (Onsite), Other, and All Classes

AGE DISTRIBUTION

	Online		Mixed		Onsite		Other		Total	
UNDERGRADUATE	#	%	#	%	#	%	#	%	#	%
2001										
25 or under	1,503	17.6%	1,080	25.2%	1,515	22.1%	201	16.4%	4,299	20.5%
26-35	3,618	42.3%	1,817	42.4%	2,572	37.5%	448	36.6%	8,455	40.4%
36-45	2,589	30.2%	1,021	23.8%	1,794	26.2%	396	32.4%	5,800	27.7%
46-54	747	8.7%	308	7.2%	760	11.1%	143	11.7%	1,958	9.4%
55 or older	104	1.2%	56	1.3%	213	3.1%	35	2.9%	408	2.0%
Total	8,561	100%	4,282	100%	6,854	100%	1,223	100%	20,920	100%
2000										
25 or under	773	13.3%	601	18.1%	1,207	17.1%	263	12.4%	2,844	15.5%
26-35	2,497	43.0%	1,484	44.8%	2,766	39.2%	813	38.3%	7,560	41.3%
36-45	1,891	32.5%	887	26.8%	2,057	29.1%	716	33.7%	5,551	30.3%
46-54	569	9.8%	282	8.5%	811	11.5%	261	12.3%	1,923	10.5%
55 or older	82	1.4%	59	1.8%	222	3.1%	70	3.3%	433	2.4%
Total	5,812	100%	3,313	100%	7,063	100%	2,123	100%	18,311	100%
1999										
25 or under	212	7.5%	216	10.3%	1,123	14.3%	317	9.6%	1,868	11.6%
26-35	1,160	41.0%	1,003	47.8%	3,164	40.2%	1,266	38.5%	6,593	41.0%
36-45	1,071	37.9%	632	30.1%	2,333	29.6%	1,099	33.4%	5,135	31.9%
46-54	328	11.6%	216	10.3%	961	12.2%	483	14.7%	1,988	12.4%
55 or older	56	2.0%	31	1.5%	296	3.8%	125	3.8%	508	3.2%
Total	2,827	100%	2,098	100%	7,877	100%	3,290	100%	16,092	100%
GRADUATE										
2001										
25 or under	357	7.6%	189	10.7%	108	8.4%	1	5.9%	655	8.4%
26-35	2,097	44.5%	818	46.4%	539	41.9%	9	52.9%	3,463	44.5%
36-45	1,606	34.1%	537	30.5%	431	33.5%	3	17.6%	2,577	33.1%
46-54	563	12.0%	194	11.0%	168	13.1%	3	17.6%	928	11.9%
55 or older	87	1.8%	25	1.4%	39	3.0%	1	5.9%	152	2.0%
Total	4,710	100%	1,763	100%	1,285	100%	17	100%	7,775	100%
2000										
25 or under	125	4.4%	143	7.6%	90	5.3%	8	5.1%	366	5.6%
26-35	1,233	43.4%	890	47.4%	715	42.4%	62	39.5%	2,900	44.2%
36-45	1,050	36.9%	588	31.3%	561	33.3%	60	38.2%	2,259	34.4%
46-54	375	13.2%	223	11.9%	275	16.3%	21	13.4%	894	13.6%
55 or older	61	2.1%	34	1.8%	46	2.7%	6	3.8%	147	2.2%
Total	2,844	100%	1,878	100%	1,687	100%	157	100%	6,566	100%
1999										
25 or under	34	2.4%	59	4.0%	75	2.8%	17	4.2%	185	3.1%
26-35	571	41.0%	668	45.0%	1,152	43.3%	147	36.7%	2,538	42.7%
36-45	527	37.9%	507	34.1%	944	35.5%	159	39.7%	2,137	36.0%
46-54	225	16.2%	219	14.7%	411	15.4%	61	15.2%	916	15.4%
55 or older	35	2.5%	32	2.2%	80	3.0%	17	4.2%	164	2.8%
Total	1,392	100%	1,485	100%	2,662	100%	401	100%	5,940	100%

Table 4: Profile of Students Enrolled in Online, Mixed, Face-to-Face (Onsite), Other, and All Classes

GEOGRAPHIC DISTRIBUTION

	Online		Mixed		Onsite		Other		Total	
UNDERGRADUATE	#	%	#	%	#	%	#	%	#	%
2001										
In-state	4,158	48.6%	3,833	89.5%	6,230	90.9%	933	76.3%	15,154	72.4%
Out-of-State	3,897	45.5%	447	10.4%	611	8.9%	287	23.5%	5,242	25.1%
International	506	5.9%	2	0.0%	13	0.2%	3	0.2%	524	2.5%
Total	8,561	100%	4,282	100%	6,854	100%	1,223	100%	20,920	100%
2000										
In-state	2,702	46.5%	2,850	86.0%	6,355	90.0%	1,582	74.5%	13,489	73.7%
Out-of-State	2,789	48.0%	454	13.7%	698	9.9%	527	24.8%	4,468	24.4%
International	321	5.5%	9	0.3%	10	0.1%	14	0.7%	354	1.9%
Total	5,812	100%	3,313	100%	7,063	100%	2,123	100%	18,311	100%
1999										
In-state	1,353	47.9%	1,721	82.0%	6,668	84.7%	2,377	72.2%	12,119	75.3%
Out-of-State	1,403	49.6%	365	17.4%	971	12.3%	895	27.2%	3,634	22.6%
International	71	2.5%	12	0.6%	238	3.0%	18	0.5%	339	2.1%
Total	2,827	100%	2,098	100%	7,877	100%	3,290	100%	16,092	100%
GRADUATE										
2001										
In-state	2,162	45.9%	1,571	89.1%	1,102	85.8%	12	70.6%	4,847	62.3%
Out-of-State	2,214	47.0%	191	10.8%	181	14.1%	5	29.4%	2,591	33.3%
International	334	7.1%	1	0.1%	2	0.2%	0	0.0%	337	4.3%
Total	4,710	100%	1,763	100%	1,285	100%	17	100%	7,775	100%
2000										
In-state	1,349	47.4%	1,588	84.6%	1,467	87.0%	134	85.4%	4,538	69.1%
Out-of-State	1,308	46.0%	281	15.0%	218	12.9%	23	14.6%	1,830	27.9%
International	187	6.6%	9	0.5%	2	0.1%	0	0.0%	198	3.0%
Total	2,844	100%	1,878	100%	1,687	100%	157	100%	6,566	100%
1999										
In-state	713	51.2%	1,236	83.2%	2	16.7%	0	0.0%	1,951	67.4%
Out-of-State	584	42.0%	233	15.7%	4	33.3%	2	50.0%	823	28.4%
International	95	6.8%	16	1.1%	6	50.0%	2	50.0%	119	4.1%
Total	1,392	100%	1,485	100%	12	100%	4	100%	2,893	100%

TABLE 5: ETHNICITY TRENDS

	Online	Mixed	Onsite	Other	Total		Online & Mixed	
UNDERGRADUATE	%	%	%	%	#	%	#	%
2001								
African-American	31.1%	23.1%	39.6%	6.1%	6,672	100%	3,620	54.3%
Native American	45.0%	24.0%	27.1%	3.9%	129	100%	89	69.0%
Asian	24.6%	25.0%	46.0%	4.4%	1,623	100%	805	49.6%
Hispanic	36.2%	21.2%	39.1%	3.5%	920	100%	528	57.4%
White	50.0%	18.1%	25.5%	6.3%	10,502	100%	7,162	68.2%
Unknown	40.3%	19.2%	36.8%	3.7%	1,074	100%	639	59.5%
2000								
African-American	23.5%	19.4%	45.0%	12.0%	5,586	100%	2,401	43.0%
Native American	39.6%	15.4%	36.3%	8.8%	91	100%	50	54.9%
Asian	17.1%	24.5%	50.6%	7.8%	1,416	100%	589	41.6%
Hispanic	28.4%	18.1%	46.0%	7.5%	802	100%	373	46.5%
White	38.9%	16.5%	32.1%	12.5%	9,841	100%	5,453	55.4%
Unknown	28.7%	16.3%	47.1%	7.8%	575	100%	259	45.0%
1999								
African-American	12.6%	13.4%	53.7%	20.4%	4,676	100%	1,213	25.9%
Native American	10.9%	13.0%	52.2%	23.9%	46	100%	11	23.9%
Asian	7.7%	15.9%	65.4%	11.1%	1,236	100%	291	23.5%
Hispanic	15.3%	13.3%	57.3%	14.1%	640	100%	183	28.6%
White	21.9%	12.6%	43.1%	22.5%	9,051	100%	3,120	34.5%
Unknown	13.3%	10.8%	61.2%	14.7%	443	100%	107	24.2%
GRADUATE								
2001								
African-American	47.2%	30.5%	21.9%	0.4%	2,367	100%	1,839	77.7%
Native American	69.6%	17.9%	12.5%	0.0%	56	100%	49	87.5%
Asian	48.8%	28.4%	22.9%	0.0%	783	100%	604	77.1%
Hispanic	60.8%	20.1%	18.7%	0.4%	278	100%	225	80.9%
White	69.5%	17.9%	12.4%	0.2%	3,995	100%	3,492	87.4%
Unknown	76.0%	13.2%	10.8%	0.0%	296	100%	264	89.2%
2000								
African-American	30.7%	34.8%	32.3%	2.3%	2,017	100%	1,320	65.4%
Native American	69.2%	19.2%	7.7%	3.8%	26	100%	23	88.5%
Asian	28.8%	36.8%	31.9%	2.5%	684	100%	449	65.6%
Hispanic	44.2%	29.0%	25.0%	1.8%	224	100%	164	73.2%
White	52.6%	23.8%	21.2%	2.4%	3,521	100%	2,690	76.4%
Unknown	62.8%	18.1%	16.0%	3.2%	94	100%	76	80.9%
1999								
African-American	15.7%	27.8%	49.2%	7.2%	1,835	100%	799	43.5%
Native American	31.8%	9.1%	54.5%	4.5%	22	100%	9	40.9%
Asian	15.4%	24.5%	54.8%	5.3%	609	100%	243	39.9%
Hispanic	23.1%	22.1%	51.4%	3.4%	208	100%	94	45.2%
White	29.3%	23.8%	39.9%	6.9%	3,241	100%	1,723	53.2%
Unknown	12.0%	24.0%	48.0%	16.0%	25	100%	9	36.0%

TABLE 6: GENDER TRENDS

	Online	Mixed	Onsite	Other	Total		Online & Mixed	
UNDERGRADUATE	%	%	%	%	#	%	#	%
2001								
Male	40.5%	18.7%	35.1%	5.7%	9,141	100%	5,406	59.1%
Female	41.3%	21.9%	30.9%	5.9%	11,779	100%	7,437	63.1%
2000								
Male	31.5%	17.1%	40.4%	11.0%	8,121	100%	3,951	48.7%
Female	31.9%	18.9%	37.2%	12.1%	10,190	100%	5,174	50.8%
1999								
Male	17.3%	12.4%	51.8%	18.5%	7,259	100%	2,152	29.6%
Female	17.8%	13.6%	46.6%	22.0%	8,833	100%	2,773	31.4%
GRADUATE								
2001								
Male	62.4%	20.9%	16.5%	0.2%	4,061	100%	3,382	83.3%
Female	58.6%	24.6%	16.6%	0.2%	3,714	100%	3,091	83.2%
2000								
Male	45.3%	26.5%	25.5%	2.7%	3,441	100%	2,469	71.8%
Female	41.2%	30.9%	25.9%	2.0%	3,125	100%	2,250	72.0%
1999								
Male	24.4%	22.5%	47.1%	6.0%	3,046	100%	1,427	46.8%
Female	22.5%	27.6%	42.4%	7.5%	2,894	100%	1,450	50.1%

TABLE 7: AGE TRENDS

	Online	Mixed	Onsite	Other	Total		Online & Mixed	
UNDERGRADUATE	%	%	%	%	#	%	#	%
2001								
25 or under	35.0%	25.1%	35.2%	4.7%	4,299	100%	2,583	60.1%
26-35	42.8%	21.5%	30.4%	5.3%	8,455	100%	5,435	64.3%
36-45	44.6%	17.6%	30.9%	6.8%	5,800	100%	3,610	62.2%
46-54	38.2%	15.7%	38.8%	7.3%	1,958	100%	1,055	53.9%
55 or older	25.5%	13.7%	52.2%	8.6%	408	100%	160	39.2%
2000								
25 or under	27.2%	21.1%	42.4%	9.2%	2,844	100%	1,374	48.3%
26-35	33.0%	19.6%	36.6%	10.8%	7,560	100%	3,981	52.7%
36-45	34.1%	16.0%	37.1%	12.9%	5,551	100%	2,778	50.0%
46-54	29.6%	14.7%	42.2%	13.6%	1,923	100%	851	44.3%
55 or older	18.9%	13.6%	51.3%	16.2%	433	100%	141	32.6%
1999								
25 or under	11.3%	11.6%	60.1%	17.0%	1,868	100%	428	22.9%
26-35	17.6%	15.2%	48.0%	19.2%	6,592	100%	2,163	32.8%
36-45	20.9%	12.3%	45.4%	21.4%	5,135	100%	1,703	33.2%
46-54	16.5%	10.9%	48.3%	24.3%	1,988	100%	544	27.4%
55 or older	11.0%	6.1%	58.3%	24.6%	508	100%	87	17.1%
GRADUATE								
2001								
25 or under	54.5%	28.9%	16.5%	0.2%	655	100%	546	83.4%
26-35	60.6%	23.6%	15.6%	0.3%	3,463	100%	2,915	84.2%
36-45	62.3%	20.8%	16.7%	0.1%	2,577	100%	2,143	83.2%
46-54	60.7%	20.9%	18.1%	0.3%	928	100%	757	81.6%
55 or older	57.2%	16.4%	25.7%	0.7%	152	100%	112	73.7%
2000								
25 or under	34.2%	39.1%	24.6%	2.2%	366	100%	268	73.2%
26-35	42.5%	30.7%	24.7%	2.1%	2,900	100%	2,123	73.2%
36-45	46.5%	26.0%	24.8%	2.7%	2,259	100%	1,638	72.5%
46-54	41.9%	24.9%	30.8%	2.3%	894	100%	598	66.9%
55 or older	41.5%	23.1%	31.3%	4.1%	147	100%	95	64.6%
1999								
25 or under	18.4%	31.9%	40.5%	9.2%	185	100%	93	50.3%
26-35	22.5%	26.3%	45.4%	5.8%	2,538	100%	1,239	48.8%
36-45	24.7%	23.7%	44.2%	7.4%	2,137	100%	1,034	48.4%
46-54	24.6%	23.9%	44.9%	6.7%	916	100%	444	48.5%
55 or older	21.3%	19.5%	48.8%	10.4%	164	100%	67	40.9%

TABLE 8: LOCATION TRENDS

	Online	Mixed	Onsite	Other	Total		Online & Mixed	
UNDERGRADUATE	%	%	%	%	#	%	#	%
2001								
In-state	27.4%	25.3%	41.1%	6.2%	15,154	100%	7,991	52.7%
Out-of-State	74.3%	8.5%	11.7%	5.5%	5,242	100%	4,344	82.9%
International	96.6%	0.4%	2.5%	0.6%	524	100%	508	96.9%
2000								
In-state	20.0%	21.1%	47.1%	11.7%	13,489	100%	5,552	41.2%
Out-of-State	62.4%	10.2%	15.6%	11.8%	4,468	100%	3,243	72.6%
International	90.7%	2.5%	2.8%	4.0%	354	100%	330	93.2%
1999								
In-state	11.2%	14.2%	55.0%	19.6%	12,119	100%	3,074	25.4%
Out-of-State	38.6%	10.0%	26.7%	24.6%	3,634	100%	1,768	48.7%
International	20.9%	3.5%	70.2%	5.3%	339	100%	83	24.5%
GRADUATE								
2001								
In-state	44.6%	32.4%	22.7%	0.2%	4,847	100%	3,733	77.0%
Out-of-State	85.4%	7.4%	7.0%	0.2%	2,591	100%	2,405	92.8%
International	99.1%	0.3%	0.6%	0.0%	337	100%	335	99.4%
2000								
In-state	29.7%	35.0%	32.3%	3.0%	4,538	100%	2,937	64.7%
Out-of-State	71.5%	15.4%	11.9%	1.3%	1,830	100%	1,589	86.8%
International	94.4%	4.5%	1.0%	0.0%	198	100%	196	99.0%
1999								
In-state	15.7%	27.2%	59.5%	7.6%	4,545	100%	1,949	42.9%
Out-of-State	45.8%	18.3%	31.8%	4.2%	1,276	100%	817	64.0%
International	79.8%	13.4%	5.0%	1.7%	119	100%	111	93.3%

TABLE 9: DEGREE COMPLETIONS BY ENROLLMENT TYPE

	Online		Mixed		Onsite		Other		Total	
	#	%	#	%	#	%	#	%	#	%
Undergraduate										
FY 1999	115	5.7%	721	35.9%	420	20.9%	752	37.5%	2,008	100%
FY 2000	234	10.8%	1,073	49.4%	394	18.1%	473	21.8%	2,174	100%
FY 2001	357	15.1%	1,415	60.0%	287	12.2%	300	12.7%	2,359	100%
Graduate										
FY 1999	1	0.1%	352	44.0%	337	42.1%	110	13.8%	800	100%
FY 2000	12	1.6%	433	56.8%	251	32.9%	66	8.7%	762	100%
FY 2001	36	4.5%	544	68.3%	186	23.3%	31	3.9%	797	100%

DISCUSSION

Profile Versus Patterns of Enrollment in Different Delivery Formats

A profile of students usually refers to a set of data that portrays the significant features of a population or subset of a population. The populations of interest in this paper are the students enrolled in online classes and students enrolled in the combination of both face-to-face and online classes during the specified fiscal year. The other category included the residual category (e.g., only voice mail...which is a type of distance class being phased out). Please see Figure 2 for a Venn Diagram displaying the population subsets. A profile's utility is that you can see your typical online, mixed, and face-to-face student at the University. However, a profile of a subset can be heavily affected by the profile of the entire school. For example, if most a university's students are female, females might be typical in every subset. Yet although the female was typical, they might be "underrepresented" in that subgroup relative to what would be predicted from their percentage in the entire population. Thus, a better approach to studying the digital divide is to study trend data on how different ethnic groups (or gender groups, etc.) are choosing to enroll in online, mixed, face-to-face classes. Studying the percentage of students enrolling in each type of delivery format will provide data on enrollment patterns that can be compared among ethnic groups and across time.

Implications for the Digital Divide

Earlier in this report we indicated that we would provide demographic data that would help address the important question as to whether the growth of web based

education is providing an opportunity for increased access...or if it instead reduces access by accentuating the significance of the digital divide? In the report published by the College Board entitled, "The Virtual University and Educational Opportunity: Issues of Equity and Access for the Next Generation" (Gladieux and Swail, 1999), the report's authors stated that online access is stratified by income and racial/ethnic categories. Given these concerns, the demographic data, especially the ethnic breakdown statistics, provide important information.

Let us review the data. The absolute number of African-American at the university has been increasing over the period FY 1999 to FY 2001 (n=6,672 undergraduates in FY 2001). In addition, the percentage of African-American students who have been enrolled in online classes exclusively has increased from 12.6% to 23.5% to 31.1%. If you look at the percentage of African-American undergraduate students who are participating either exclusively in online education or partly in online education (i.e., mixed category), the proportion participating is even higher over the time period FY 1999 (25.9%), FY 2000 (43%), and FY 2001 (54.3%). More than half the stateside African-American undergraduates participated in online education during FY 2001.

While the African-American online participation percentages are lower than the comparable percentages for white students, trend data helps provide insight into the pattern of participation of African-American students in online education. In FY 2001, African-American participation in online and mixed classes (54.3%) is almost the same as the percentage for whites in FY 2000 (55.4%). In FY 2000, African-American participation in online and mixed classes (43%) is much higher than the percentage for whites in FY 1999 (34.5%). The trend lines for African-Americans, Asians, Hispanics

and whites look fairly similar for all ethnic groups. While the starting and ending points are not exactly the same, the growth patterns and trend lines are parallel. The data indicates that at least in terms of participation in either online or mixed classes, viewing the data across time leads to the conclusion that the digital divide is fairly narrow for African American college students at a university with a large online enrollment.

Bibliography

Brown, John Seely. (2000) Growing Up Digital. *Change*.

Diaz, D. (March/April, 2000) Carving a New Path for Distance Education Research. *The Technology Source*. Retrieved April 19, 2000 from the World Wide Web: http://horizon.unc.edu/TS/commentary/2000-03a.asp

Ferketich, M., Jacoby, J. & Nichols, A. N. (July, 1998) Introduction to Online Education. *Coyote New Media's Online Educator's Project*. Retrieved February 15, 2000 from the World Wide Web: http://www.coyotenewmedia.com/education/online.html

Gladieux, Lawrence E. and Watson Scott Swail.*(1999) The Virtual University and Educational Opportunity: Issues of Equity and Access for the Next Generation*. Washington, D.C., The College Board.

Kennard, W. E. (2000) "Internet: The American Experience." An Address by William E. Kennard, Chairman, and U.S. Federal Communications Commission to the Conference on "Internet & Telecommunications: The Stakes." Retrieved February 15, 2000 from the World Wide Web: http://www.fcc.gov/Speeches/Kennard/2000/spwek004.html

Lilienfeld, Abraham and David Lilienfeld. Foundations of Epidemiology. N.Y.: Oxford University Press, 1980.

National Postsecondary Educational Cooperative. (1999) Best Practices for Data Collectors and Data Providers: Report of the Working Group on Better Coordination of Postsecondary Education Data Collection and Exchange. Washington, D.C. National Center for Education Statistics.

Phipps, Ronald A. and Jamie Merisotis.(1999) *Quality on The Line: Benchmarks for Success in Internet-Based Distance Education*. Washington, D.C. Institute for Higher Education Policy.

Phipps, Ronald A.and Jamie Merisotis.(1999) *What's the Difference? A Review of Contemporary Research on the Effectiveness of Distance Learning in Higher Education* . Washington, D.C. American Federation of Teachers and National Education Association.

Phipps, Ronald A., Jane V. Wellman, and Jamie Merisotis.(1998) *Assuring Quality in Distance Learning: A Preliminary Review*. Summary Report. Washington, D.C. Council for Higher Education Accreditation.

Schweber, Claudine. (1999) Education at a Distance. *Information Impacts*. http://www.cisp.org/imp/june_99/schweber/06_99schweber.htm

U.S. Department of Education. (1999) *Distance Education at Postsecondary Education Institutions: 1997-98*. Washington, D.C. National Center for Education Statistics.

U.S. Department of Education (1998) Distance *Education in Higher Education Institutions 1995*. Postsecondary Education Quick Information System Report (NCES 98-062). Washington, DC: NCES, OERI http://nces.ed.gov/pubs98/distance/tab25.html\

U.S. Department of Commerce (1998). Falling Through the Net II: New Data on the Digital Divide. Washington, D.C. National Telecommunications and Information Administration..